

## CLAIMS

We claim:

1. In an energetic particle beam profile scanner having a probe constructed of a material that emits electrons when struck by the particle beam, a detection means for detecting the electrons emitted from the probe, and drive means for passing the probe through the particle beam at first and second positions along the particle beam axis, and wherein the probe provides two mutually perpendicular scans of the particle beam, the profile scanner further comprising:

a second probe constructed of a material that emits electrons when struck by the particle beam, said detection means capable of detecting the electrons emitted from said second probe, said drive means capable of passing said second probe through the particle beam at said first and second positions along the particle beam axis, said second probe providing two additional mutually perpendicular scans of the particle beam, such that two mutually perpendicular beam scans are obtained at said first position along the particle beam axis, and two mutually perpendicular beam scans are obtained at said second position along the particle beam axis.

2. The particle beam profile scanner of claim 1 wherein said probe and said second probe are mounted spaced apart on said drive means.